

~~Heavy Metals on Army Training Lands NDIA Environmental Meeting April 2004 San Diego, CA~~

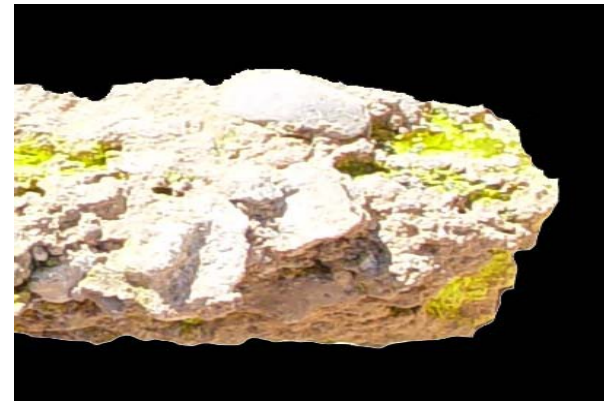
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Sustainability on Army Ranges: Management of Heavy Metals

Lead Oxide



Depleted Uranium Oxide

Why is Heavy Metals Policy an Issue?

- ◆ Concerns about the relationship between Army range contaminants and sustainability
- ◆ Concerns that Army heavy metals policy does not meet the President's Management agenda of **"Base Policy on Science"**
- ◆ **Concerns about the Army's management of heavy metals in new and existing weapons system—is the tungsten "green bullet" really green?**

What Does the Army Need to Do?

- ◆ Broaden heavy metal considerations to include range sustainability as related to environment, safety, and occupational health, e.g.
 - All heavy metals are toxic at some concentration
 - Heavy metals are a long-term range sustainability problem
 - Heavy metals must be managed across the Army to assure operational sustainability
 - Residuals from accelerants and explosives linked to heavy metals range sustainability issues

Range Sustainability Environmental Contaminants

- ♦ Heavy Metals (Today's Focus)
- ♦ Residuals from accelerants and explosives

Health/Environmental Effects & Force Protection

- ◆ Issues are not well defined or understood
- ◆ Technical disagreement on impacts
- ◆ Weak science on many issues

Problem

- ◆ Heavy Metals are a major range sustainability issue
- ◆ Management of heavy metals on Army ranges is diffuse across many organizations
- ◆ Recent heavy metal environmental contamination issues have closed some ranges and restricted training on others
- ◆ The Army's implementation of the findings in the 1995 report to Congress on depleted uranium is under scrutiny

Background

- ◆ Health & environment perceptions
 - Institutional
 - Public
- ◆ Transport of heavy metals through environmental media
- ◆ Heavy metal residual distribution
 - Differences due to soil and geology
 - Differences due to climate

Policy Analyses Required

- ◆ Evaluate implementation of the Army's 1995 commitments to Congress on managing depleted uranium
- ◆ Evaluate the health & environmental consequences of past, current and future use of primary heavy metals

Policy Analyses Needs

- ◆ Evaluate health & environmental consequences of past, current and future use of heavy metal alloys
- ◆ Evaluate health & environmental consequences of future use of heavy metal complexes contemplated for new-generation kinetic energy weapons

Scientific Assessment & Evaluation

- ◆ Assess emerging weapon systems fit within the existing heavy metal health and environmental effects knowledge base
- ◆ Evaluate shifts in material flows to assess the sustainability of major shifts in heavy metal usage in Army weapon systems



Study Conclusions

Policy promulgated by the Secretariat
on emerging weapon systems and
associated materials should
consider the following:

Study Conclusions (Continued)

1. Addressing long-term issues related to heavy metals
 - New technology impacts
 - Public perception
 - Material stocks and flows
2. Developing partnering relationships among Army organizations such as AEC, CHPPM, OTSG, developers, AFRRI and others to affect heavy metals policy

Study Conclusions (Continued)

3. Developing partnering relationships with universities and the private sector
4. Integrating existing information on heavy metal contamination on ranges across the Army to support policy analysis and research

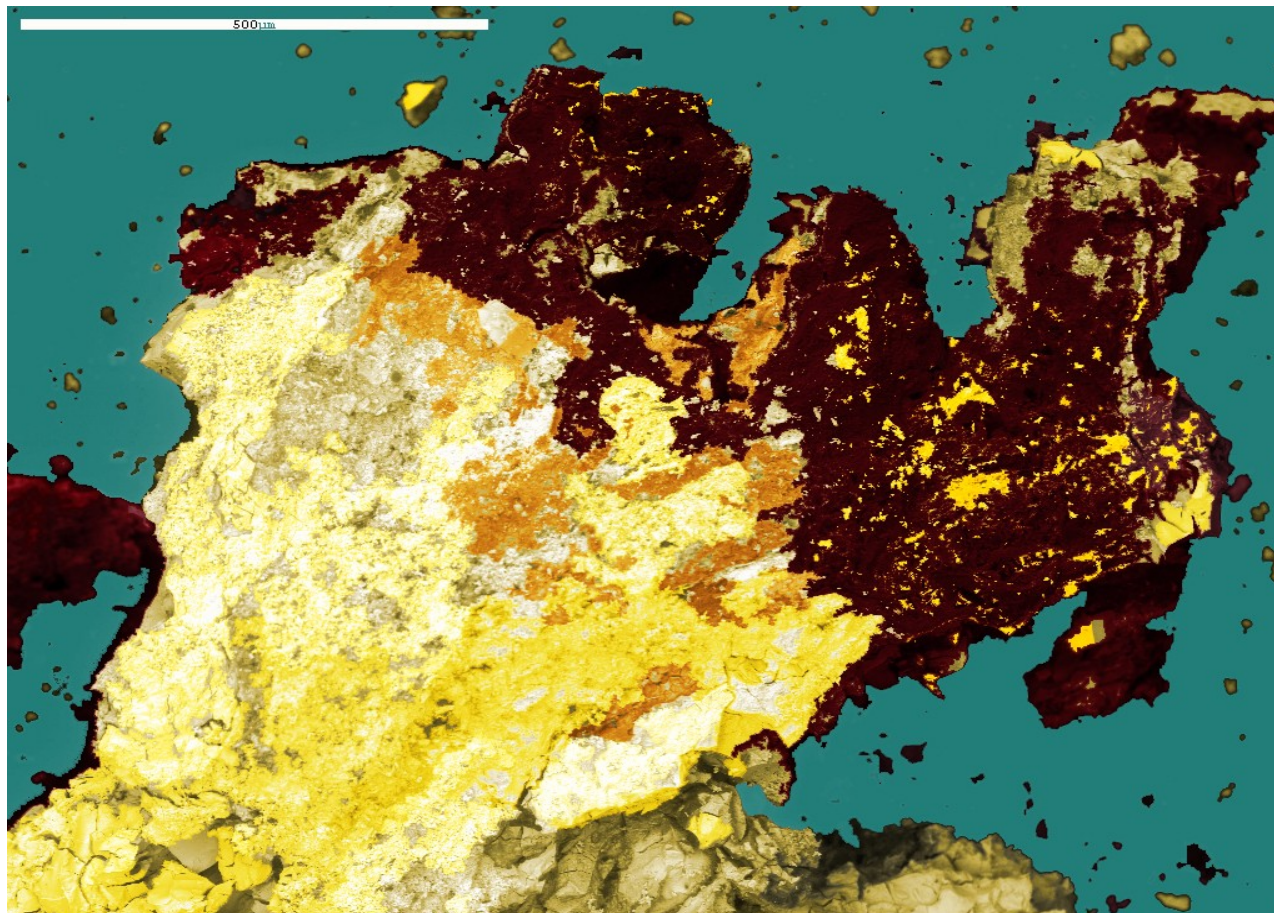
Study Conclusions (Continued)

5. Developing an integrated strategy for the management and/or remediation of heavy metal contamination for BRAC sites
6. Developing an integrated policy on environment, safety, and occupational health issues associated with heavy metals in existing and candidate weapon systems

Study Conclusions (Continued)

7. Ensuring that environment, safety, and occupational health issues are independently considered in the lifecycle cost of new weapon systems

Solution Migration of Soluble DU(VI) Into the Soil Matrix at YPG



DU(VI) Yellow
Soil Brown

09/10/16

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